

Marine Offshore Outlook 1984

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Compiled by
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Marine Business Management Specialist



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MARINE OFFSHORE OUTLOOK

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The Marine/Offshore Industry Outlook Conference is an annual event sponsored by the Texas A&M University Sea Grant College Program and the Marine Services Association of Texas. Its purpose is to bring industry representatives up to date on developments, trends and problems in marine and offshore industries.

This summary, compiled by Dewayne Hollin, was prepared from speakers' remarks at the 1984 conference in Houston, Texas.

For further information about other conferences and seminars sponsored by Sea Grant for marine-related industries, contact Dewayne Hollin, Sea Grant College Program, Texas A&M University, College Station, Texas 77843-4115; phone 409/845-3854.

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MARINE/OFFSHORE INDUSTRY OUTLOOK CONFERENCE

April 19, 1984
Marriott Astrodome Hotel
Houston, Texas

"Developments and Trends in Offshore Oil Exploration
and Production Affecting the Marine Industry"

ROBERT G. BURKE, Offshore Magazine

No growth is the major energy trend at midyear for oil and gas and should continue through the century's end. Other trends include sagging production in the United States and more reliance on OPEC for oil supplies. The energy picture can be broken down into four elements. Oil demand in nations outside the Soviet bloc peaked at 50 million barrels per day (b/d) in 1979, slipped to 44.5 million b/d, and probably will not exceed 52 million b/d by the year 2000. Energy prices, particularly for oil, are as likely to fall as they are to rise. OPEC oil output as a percentage of world oil consumption is expected to rise to 54 percent in 2000, up from a current 42 percent. This will make consuming nations more vulnerable to supply disruptions and price shocks. Decreasing use of natural gas by certain industries will create an erratic world market, causing available supplies to go up and down by region.

The supply capacity in non-Communist countries is at 12 million to 13 million b/d, almost wholly inside the Mideast. This surplus may grow to 16 million b/d if Iraq and Iran stop fighting and patch up damaged facilities and facilities are added in Mexico, the North Sea and, hopefully, in Arctic waters. By 1990 or earlier, analysts predict non-OPEC nations will be producing at capacity, so the swing to meet future demand must come from OPEC. Demand for oil in the United States is expected to stay constant at 15 million b/d, but production will decline from a current 10 million b/d to 7.5 million b/d in 2000. Oil imports will take up the slack, rising from 4 million b/d this year to nearly 7 million b/d, or 45 percent of the total supply, in 2000. Natural gas demand in the United States should stay at about 52 billion cubic feet a day through this century. Producing capacity for conventional gas is expected to shrink from 55 billion cubic feet a day to 37 billion in 2000.

Offshore service industries are still foundering in the wake of the worldwide drilling slump during the past 2 years, even though a business turnaround is obviously underway. More rigs than ever before are working, and rig utilization rates are up. Some optimism is evident among diving contractors. Major diving company acquisitions have occurred in the past year as some firms appear to be setting themselves up for a strong resurgence of

diving demand. The Society of Exploration Geophysicists counted 53 marine vessels working in U.S. waters during February, which matches the 1982 peak among past February counts. Marine construction is being hurt by the gas bubble and the resulting delay of development projects. The North Sea looks promising again as 20 to 30 new fields may be developed as a result of relaxed tax regimes. The dual problem of lower demand and oversupply still hangs like a dark cloud over offshore transportation. Supply boat day rates will remain depressed as long as there are two or three boats competing for every job, and there is little indication that situation will change anytime soon. Shipyards specializing in supply boats are getting scattered orders for more powerful, specialized-function vessels.

Some companies expect offshore activity to pick up soon, partly due to an expanded 5-year leasing program. Among the places to watch, they say, are the North Sea, the Gulf of Mexico and China. A good sign for service firms in the Gulf of Mexico was the large number of deepwater leases taken in 1983 areawide sales. This is already helping seismic firms as operators survey new acreage farther out to sea than previous exploration sites. The diving and transportation sectors are gaining work as the drilling tempo speeds up in these areas. Marine construction will benefit downroad when it is time to develop the new fields that are discovered. Since most jackups are limited to use in 300 feet of water or less, the Gulf may require 44 floating rigs by the end of this year, and as many as 60 by the end of 1985. Supply boat use will increase slowly in coming months, paralleling rig use. The marine construction industry will be troubled by overcapacity for some time. Offshore's 1983 pipeline survey showed 253 projects totaling over 5,400 miles either under construction or planned. This was up from 1982, which showed 137 projects with about 2,500 miles. The diving picture looks much brighter, thanks to increased construction activity in the North Sea and increased exploration in the Gulf of Mexico. Seismic firms are doing better than most other contractors. Good seismic data remains a valuable asset and operators want a good current picture of where to lease and drill when production begins to fall precipitously later in this decade. As the shipbuilding industry collapsed in 1983, overbuilding in previous years quickly reduced the level of construction to 74 vessels spread over 17 years. This year less than 10 large vessels are on order, with few prospects for more. The level of inquiries is rising, but actual orders for new construction are not.

The flow of offshore oil in 1983 surpassed the 14 million b/d mark for the first time and contributed 26 percent of production worldwide, a gain of 5.6 percent over 1982 offshore figures. Over the next decade, offshore oil will probably gain in market share at a faster rate than before, until half the world's production comes from offshore. Nearly all the gains in world oil production since 1973 came from the North Sea and Mexico, both big producers offshore. Additional contributions to world production came from Brazil, West Africa, India and the Far East -- each a large offshore producer. Since offshore is more costly than onshore, a

higher level of expenditures will be needed, if the industry is to avoid a future decline in production.

Based on an analysis of drilling plans, Offshore projects slightly more than 3,700 exploration and development wells will be completed worldwide this year, representing about a 60 percent increase over 1983. With the exception of the North Sea, development drilling will continue to lead the way. A regional overview shows the Gulf of Mexico and the North Sea posting substantial gains as companies rush to drill the millions of acres acquired in those sectors both last year and in previous offerings. The Middle East, Latin America and the Asia/Pacific offshore theaters will see only slight increases. The Mediterranean and African regions are expected to sustain declines in exploration and development.

In 1983, leases on 1,399 U.S. OCS tracts totalling 56.1 million acres were awarded in seven separate offerings including the December eastern Gulf of Mexico offering that leased 156 offshore Florida tracts totalling 50.6 million acres. Federal leases awarded in the Gulf of Mexico, the South and Mid-Atlantic and offshore Alaska promise to unleash a flurry of exploration activity in those regions. Disappointing results in Atlantic and Alaskan projects have temporarily quieted the enthusiasm in those sectors, while the Gulf continues to be the dominant force in U.S. activity in 1984. Several rounds of concessions in the United Kingdom and Norwegian sectors of the North Sea created a resurgence of activity. Blocks awarded offshore China and Indonesia last year likewise promise to increase activity in those areas.

Near-term activity in U.S. waters appears promising thanks to the record number of tracts that became available to explorers last year. However, environmentalists and politicians threaten to keep additional acreage out of the hands of oil companies. More than 53 million acres containing oil reserves of an estimated 1.35 billion barrels, concentrated offshore Florida, Massachusetts and California, already have been placed off-limits to drilling. Nearly 85 percent of the California coastline, for instance, has been removed from all activity. Companies desiring to drill offshore Alaska will be hardest hit in the future. The U.S. Department of the Interior intends to substantially reduce, or at least defer, lease sales off that state in the next few years.

The U.S. government is discussing the merits of the areawide consideration process followed under the much debated five-year schedule for offshore leasing. Results from the first four areawide offerings held under the plan, show that of the nearly 246 million acres originally considered, less than 6 million acres were actually leased. Environmentalists not only are succeeding in keeping more acreage out of the reach of operators, but also are helping change the way companies will do business in 1984. Operators cannot take full advantage of declining day rates because heightened concern over discharging is adding thousands of dollars to the cost of sinking a well offshore. Nevertheless, the unsettled political climates in the United States and abroad have

not tempered, to any great extent, operators' expectations for 1984. The dwindling demand brought on by recession and conservation, ironically, has developed into a highly favorable economic climate for oil companies. Sharply reduced day rates for mobile rigs and support services are permitting operators, in some instances, to sink holes at nearly 1982 dollar levels. Some estimates have shown contract rate declines as high as 25 percent over the past 2 years.

Mobile offshore rig utilization worldwide has hovered between 75 percent and 80 percent since the fourth quarter of 1983. One analyst predicts worldwide utilization will reach 85 percent before the end of 1984 with the Gulf of Mexico and the North Sea being the primary employers. The latest worldwide mobile rig utilization rate is 81 percent. The Gulf of Mexico rate is tagged at 78.8 percent and growing with 240 rigs operating. Some analysts believe worldwide utilization rates will reach the 90 percent level by the end of 1985. The present surplus of rigs and related equipment is expected to keep a rein on day rates for some time to come. Also no drastic change in contract terms is likely in the near future. Uncertainty over the future price of crude will see operators continue to retain rigs for single-well contracts.

From all indications, the oil industry expects to continue its fascination with frontier exploration in 1984. Along with obvious technological barriers, the problem with frontier exploration, especially in deep water, centers on its vulnerability to oil price fluctuations. Development costs in these high-risk theaters are expected to exceed the rate of inflation and probably will rise much faster than the cost of oil throughout this decade.

Tax policies once again will dominate the economics of offshore exploration. Operators in U.S. waters are concerned about potential production tax increases. Much of the increased activity in the North Sea is directly attributed to the tax relief granted by the UK Parliament last year. The Petroleum Royalties Relief Bill doubles the Petroleum Royalty Tax (PRT) oil allowance and abolishes royalties on certain fields. The Oil Cessation Bill also allows oil companies to claim the cost of shared assets against the petroleum tax. It is estimated that as many as 25 new fields could be developed because of these incentives. Other nations are taking heed of the UK action, making exploration terms and taxes more enticing to operators.

Meanwhile U.S. coastal states, such as Louisiana, Texas and California, are seriously considering increasing production and refining taxes, while also demanding a large share of the federal pie. Interior Secretary William Clark is emphatically opposed to OCS revenue sharing with the states. Even with tax and environmental problems, operators worldwide indicate their 1984 exploration budgets reflect high expectations for offshore activity.

"Outlook for the Offshore Marine Industry"

K.W. WALDORF, Zapata Offshore Company

OGDEN THOMAS, JR., Seahorse, Inc.

HERB F. HAMILTON, Raymond Offshore Constructors, Inc.

JOHN V. HARTER, Taylor Diving and Salvage Co., Inc.

The state of the market for offshore contract drilling serves as the leading indicator for virtually all petroleum-related marine activity. The level of exploratory drilling will, all other things being equal, influence the level of commercial hydrocarbon discoveries which, in turn, determines demand for development drilling, production facilities and a myriad of related services and equipment downstream. Aside from the obvious importance associated with the number of exploratory wells being drilled, the offshore contract drilling industry, or more specifically, the type of equipment being used by the industry, can portend trends in the type of technology likely to be demanded of the marine service and equipment sector over the next 5 to 10 years. Are we moving into deeper water depths? Harsher environments? Will domestic markets outpace international activity? These are the types of questions which can be answered, at least in a general sense, by looking at contract drilling activity.

The economic health of a drilling contractor depends, to a great extent, on management's ability to read and assimilate market signals and to provide equipment and personnel consistent with the dictates of the marketplace. This is not an easy task in an industry where a unit of productive capital can be expected to be in service for 15 to 20 years and the investment associated with a "drilling rig" can range from around \$15 million to much more than \$100 million. In this industry, mistakes tend to be very costly and very difficult to forget. If a measure of good judgement is profitability, it is clear that we, as an industry, are currently paying the price for past mistakes, with some contractors paying more than others.

In the most recent boom/bust cycle - 1979 through the present - 112 distinct rig-owning companies placed orders for, and built, in excess of 370 mobile offshore drilling rigs. Compared to the fleet at the end of 1978, today's industry represents a 175 percent expansion of capacity. This is capacity which will not easily be removed from service. Plus unfortunately, governments almost always view offshore drilling as a means to a distinctly political end. Meanwhile environmentalists' denials of exploratory drilling rights has amounted to billions of dollars of wasted funds and effort. The bottomline is an industry which, somewhat akin to Pavlov's dogs, has come to rely on wars and environmental impact statements as the most relevant market signals.

Assuming the status quo prevails, we expect to see the

industry regain reasonable prosperity sometime in 1987 or 1988. The impetus for the recovery should come as much from the diminution of supply - in the form of some much-needed retirements - as from a gradual strengthening of demand. If every 20-year-old unit is removed from service over the next 4 years, we can expect to see a decline in the available fleet somewhere on the order of 50 units - net of new buildings currently on the books. Unless older, less efficient equipment is removed from service, there is little chance that the average drilling contractor, heavily endowed with equipment competitive in the middle and lower market segments, will turn an acceptable profit in the near term.

In contrast to that morbid picture, I would like to explain how companies like Zapata intend to make the best of an otherwise bad situation. With the level of demand measured by the last three OCS lease sales in the Gulf of Mexico, the number of rigs employed should reach a peak of 94 sometime in the latter half of 1985. We have isolated the demand components associated with water depths corresponding to upper, middle and lower market segments representing deepwater acreage in excess of 1600 feet, blocks occupying the 300-to-1600 foot range and finally, the portion of awarded tracts in water depths of 300 feet or less. Zapata's belief is that the market for deepwater semisubmersibles will undergo significant strengthening over the next 12 months, largely due to the relative scarcity of Gulf of Mexico units capable of working in this segment.

Zapata has charted a course which is not altogether different from that which led to the formation of the company in 1954. That year the forerunner of Zapata's current management joined forces with a man who was convinced that he could solve the problem of moving exploratory drilling in deeper water depths without the expense of building and removing fixed structures. The man was R.G. Letourneau, an engineer and manufacturer who had made his name designing and constructing heavy earth-moving machinery. Had this conference been held in 1954, a major topic might have been the feasibility of exploring for and producing hydrocarbons in 200 feet of water or possibly, the "incredible" technology that would be required to exploit areas such as the North Sea or offshore Eastern Canada.

While the industry suffers, it does not suffer from a lack of challenges to overcome nor from a lack of frontiers to conquer. We do not see the 100-foot isobath of the Gulf of Mexico as the limit to contract drilling services. Nor do we see the 100-foot wave and 150 MPH gusts of Eastern Canada as limits, or, for that matter, the ice laden shelf of the Beaufort Sea. Our analysis indicates that 25 percent of the world's prospective offshore acreage is situated in areas that are intrinsically harsh and therefore unsuitable for year-round drilling using conventional technology. We estimate that 86 percent of the existing rig fleet would be excluded from drilling in these areas. When environmental constraints are further factored by water depth, we find that 10 percent of the prospective basins lie in harsh/deep areas, requiring the most restrictive range of drilling vessel

technology. Only 4 percent of the industry's existing fleet fits this market.

Our "outlook" is relatively straightforward. Drilling contractors with the personnel and technical know-how necessary to perform reliably in frontier areas will prosper and grow. Those who continue to perpetuate the mistakes of the past will find themselves in no better shape than they are in today.

The belief that oil prices and demand would continue to escalate above reasonable levels prompted fleets worldwide to expand at a pace significantly above historical levels. This expansion did not go unheeded by speculators hoping to cash in on lucrative tax benefits and they were eagerly assisted by greedy shipyards, short-sighted financial institutions and the Federal Government in the form of loan guarantees. These optimistic programs were demolished by the worldwide recession, whose warning signs were already on the horizon when all of this expansion was taking place. Finally, when the reality of the equipment oversupply manifested itself, the poor economic climate in the industry was perpetuated by liberal bankruptcy laws, the failure of financial institutions and the Maritime Administration to take more drastic action with under-capitalized companies, and to some degree, the failure of more established operators to willingly retire obsolete equipment.

What has the industry done to cope for the last 2 1/2 to 3 years? Not much. Naturally, standard measures in the area of cost control were instituted by necessity. Support staff has been trimmed down; purchasing managers shop for better prices; repairs on idle vessels have been deferred and repairs and dry-docking costs have become reasonable as competition between shipyards continues. The better managed, well-established companies are even better managed now, and will be in stronger positions when the industry turns around. The future may not be so bright for newer, under-capitalized companies. Certain excessive measures such as delaying needed repairs and maintenance on working vessels, and operating vessels with fewer crew members than required by Coast Guard certificate, can only hasten their demise and negatively impact the good safety record of the industry.

Where do we go from here? Even if offshore drilling activity does not pick up within the next year, there are certain measures which can be taken that would go a long way toward balancing supply and demand. MarAd and financial institutions, having financed vessels operated by companies in default, should take immediate steps to mothball those vessels until things improve significantly. Steps also need to be taken by established companies with older, obsolete equipment in their fleets.

Worldwide a maximum of 450 vessels, 150-feet and larger, are idle. Of the excess vessels in this category, as many as 200 may be so obsolete that they will never again see gainful employment in the offshore industry. If these vessels were officially taken off availability lists, worldwide utilization for supply vessels would increase from 76 percent to 87 percent. We should begin to see additional consolidation in the industry soon. When a turn-around is evident or under-capitalized companies go under, acquisitions and mergers will take place to help stabilize the industry.

Shipyards that concentrate on supplying oilfield vessels should keep in mind a few principles during the next boom: Be cautious about granting liberal contract terms to start-up operators; Do not cooperate to artificially inflate costs of vessels by cranking in working capital, construction supervision fees and interim financing; Do not be blind to the market, stay in touch with experienced owners, other yards, and end users to be sure certain classes of vessels are not being over-built; Do not casually build on speculation.

Lending institutions should make sure the costs of what they are financing is made up of "nuts and bolts." Ensure that the managing operator is fully committed by requiring more personal equity in the project. Stay in close touch with established operators, shipyards, and end users to have a better understanding of the market.

Industry is willing to cooperate and support legislation that will improve safety, protect against foreign competition, and not increase costs. We need government cooperation and assistance to enforce the Jones Act; establish tougher bankruptcy laws; step up offshore leasing schedules and provide better controls on government loan guarantees.

Even though the industry is over-built, and prices have fallen below break-even for some classes of equipment, there will be strong survivors in this industry to provide offshore services. These companies include small-to-medium-sized, well managed fleets, and major companies that have been serving the industry since the start of offshore exploration. To avoid being hurt operationally and financially by using under capitalized and poorly managed companies, transportation departments should fully evaluate potential contractors before placing them on bid lists.

The offshore boat industry has reached maturity by going through the worst period in history. The future is as bright as the oceans of the world are unexplored. We need fresh business approaches both here and abroad. Technological advances are needed for deeper water and harsher environments. More people need to participate in industry programs like this one and in associations like the Offshore Marine Service Association and the National Ocean Industries Association. The importance of a liaison with Washington through these associations cannot be underestimated. Investments in education programs, in-house training and support of maritime schools are essential to continue

the progress we have made in upgrading our people and establishing a commendable safety record. You are entitled to reasonable returns for the business risk you take to provide funds to replace and upgrade equipment as customer requirements change. If we as industry leaders conduct ourselves properly and, if organizations interfacing with industry act responsibly, a prosperous future for our industry should result.

Every major economic system in the world was thrown into confusion by OPEC price increases in 1973, and possibly no other industry experienced the direct effects more than offshore construction. The new crude prices fueled an enormous increase in the construction of offshore facilities, and the industry grew rapidly. Twenty years ago the offshore construction industry was solidly in the hands of U.S. companies. The only other offshore constructors were found in Italy, France and Holland. There are now competitors in 18 other countries. Most, if not all, of this competition sprang from political incentives. We are on the threshold of a new order in the offshore construction industry. But we are dragging our feet crossing this threshold because we feel that we are leaving a better, or at least a more comfortable, world behind.

Major factors influencing the offshore construction industry have changed dramatically in recent years, even in slow years. Big, powerful, fast equipment can be purchased from existing designs. Large diameter wire rope in great lengths and weights is readily available from a number of sources. Saturation and one-atmosphere diving equipment is available on call as are manned and remote-controlled submersibles. Hyperbaric welding and other underwater construction equipment and procedures have become more commonplace and effective. Powerful tug boats which can carry heavy anchors and run out large diameter anchor lines are numerous, experienced and available. Qualified supervision and labor is plentiful, although many workers have been forced to move to other types of work. Semi-submersible pipe-lay and derrick barges have gained domination of the top of the market. Most third-generation construction vessels are now 7 or 8 years old. Marine positioning systems with high accuracy of repeatability are common. Line pipe and weight coating qualities are greatly improved. Weather forecasting is more reliable and longer in range in most areas.

We can now take on jobs of almost any magnitude without having to design, manufacture and test new equipment and materials. The state-of-the-art of offshore construction is close to that of offshore drilling. Platforms are surviving in Mississippi Canyon mudslide areas. The deepwater, guyed-tower platform is an accomplished fact and the tension-leg platform is being used in truly hostile seas.

After a number of years during which high-interest rates shifted emphasis from construction to financial matters, it appears that contractors may be getting back to basics. Most contractors can thank the hard times for leaving them with leaner managements and more intensive marketing efforts. Management is competent and alert; however, a morale boost is much-needed. Continuation of the current business slump will adversely affect financial institutions making it more difficult for contractors to be responsive to the needs of operators. The outlook for the offshore construction industry has to be marvelous compared to the present situation. What we must hope and strive for in the future is the replacement of the feast-or-famine syndrome by a solid level of activity in the interest of economy of effort and resources.

In late 1983 Taylor compiled an estimate of the dollar size of the underwater technical services market, including diving and remote operated vehicle (ROV) services. We estimated the market to total 655 million U.S. dollars on a worldwide basis. (Figure 1) This figure includes 130 million dollars of underwater work in the domestic market including the Gulf of Mexico and California. (Figure 2)

Figure 1

ESTIMATED WORLDWIDE MARKET: BY GEOGRAPHIC AREA

	(\$ MILLIONS)		
	<u>1983</u>	<u>1982</u>	<u>1981</u>
U.S.	130	150	160
Canada	15	10	10
Latin American	75	90	100
North Sea	225	235	200
Mid-East	40	30	30
Far East	90	80	75
Africa	45	50	55
Other	35	40	45
TOTAL	655	685	675

* Rotan - Mosle: Estimate (upgrading for known U.S. activity and trends elsewhere).

FIGURE 2

ESTIMATED U.S. MARKET: BY GEOGRAPHIC AREA

	(\$ MILLIONS)		
	<u>1983</u>	<u>1982</u>	<u>1981</u>
Gulf of Mexico	103	130	144
West Coast/Alaska	22	18	15
East Coast	2	2	2
TOTAL	127	150	161

It is expected that the market will continue on a relatively flat basis in 1984 with some increases in construction support services in India and the Far East.

Although drill rig utilization is increasing domestically, the underwater service market is not being overly stimulated. Most deep drilling now beginning or contemplated will use floaters with underwater service equipment presently installed, or call out services as needed. The most significant trend in support of exploratory drilling is the trend away from divers to ROV's with manipulators. We are seeing this change worldwide in water depths of 300 feet and more. As a result, major underwater service companies are investing heavily in underwater work vehicles or are accelerating in-house developments to provide equipment that can satisfy the needs of drill rig support services. Client preference still dictates a choice between atmospheric diving systems (ADS) and ROV's; however, present ADS operations are limited to about 2,000 feet with the exception of single atmosphere manipulator bells which do not have the maneuverability of more recent ADS developments. Continued study will take place to predict which system, ADS or ROV, will capture the major portion of the deep drilling (and hopefully deep production) support market in the future.

The inspection, maintenance and repair of existing structures and pipeline continues to be the major activity for diving and ROV services as operators extend the life of older jackets to maintain production. These services are provided by underwater contractors on annual, or longer, contracts in most locations except in the United States where such work is bid on a piece-by-piece basis. Competition is strong among major international underwater contractors because these long-term contracts provide utilization of personnel and equipment with potential to affect good cost and management control. In the U.S. market where owners of offshore structures prefer, in most cases, to let inspection contracts separate from maintenance and repair contracts, assets

must be available to respond to projects with durations of from 1 week up to 3 months. Maintaining a domestic service, responsive to a market that is difficult to define, therefore, is demanding. As a result, there is an excess of equipment available in the domestic market to respond to local needs.

Underwater hot tapping of pipelines has increased in the past 2 years and bidding during the first quarter of 1984 should indicate that hot tap projects will be more prevalent this year. For the past 5 years the North Sea has generated the bulk of new techniques to perform underwater services. One of these developments, use of dynamically positioned diving support vessels (DSV's), is used in all parts of the world except the Gulf of Mexico. Diving companies in the Gulf of Mexico have performed extensive studies of the DSV market, while local vessel manufacturers have provided various designs to respond to domestic weather, work tasks and economics. It is difficult to predict when DSV's will finally receive the acceptance they deserve in our domestic market. An increase in the need for sustained deepwater services is required to prove the value of the rapid intervention capability that DSV's can provide. Such deepwater service may develop as a result of construction requirements following present deepwater exploration. The other North Sea technical development receiving worldwide attention is the use of computers to record and classify results of platform inspections in a standardized format.

Future trends include further acceptance of the use of dynamically positioned vessels in the Gulf of Mexico; formalized platform inspection formats; increased lump-sum bidding for inspection and repair projects; and more underwater service companies expanding into the light marine construction market. Major technical advancements will continue to be made in the area of remote controlled vehicles and their ancilliary equipment. Special vehicles for platform cleaning and inspection have been developed. An improvement in general economic conditions could allow these and other specialized services using ROV's to open new markets for services where divers were not previously used. The extreme depression in underwater service bidding will cause mergers and/or financial failures in under-capitalized companies. For now, entrepreneurs will be found in the ROV sector, and limited investments will be made in diving services companies.

"A Producer's View of Future Domestic Offshore Exploration
and Production in the Oil and Gas Industry"

B.S. FLOWERS, Shell Offshore, Inc.

From a producer's point of view the outlook for offshore oil and gas production in the Gulf of Mexico is an optimistic one. Back in 1980, when oil prices were projected to rise rapidly, we geared up for more production. But when oil and gas demands peaked in 1982 and prices dropped dramatically, we had to re-adjust our original forecast. Now that oil prices have stabilized somewhat and should remain relatively stable for the next several years, barring any disruption in supply, we can better project future demand and supply.

Along with the rise in oil and gas prices in 1980 and 1981, we also saw a dramatic increase in drilling and production costs. Day rates on drilling rigs peaked in 1981 and dropped sharply in 1982. Along with the drop in regular day rates came a drop in rig utilization. Day rates and rig utilization have started back up, but are not at the levels they were in 1980 and 1981. As we move to deeper water for development, costs rise. But, the depressed day rates have helped reduce the overall costs of development drilling.

The present gas bubble should begin to disappear in a year or two mainly due to a lack of reserves. As it leaves, natural gas prices will rise. Producers will be looking harder for oil reserves than for gas reserves.

Areawide lease rates have allowed oil companies to bid on most areas in which they have an interest. Oil companies should be busy for the next 4 to 5 years developing the large number of tracts leased in the Gulf of Mexico. After this there may be some reduction in development activity. During this period there will be some activity in shallow areas of the Gulf, but the deeper water tracts are going to get more attention. Well costs should go up considerably to develop these deepwater tracts, but lower drilling rig day rates should help balance things out.

Production platforms in the 600-to 1,600-foot zone can be bottom supported, but beyond this zone we will need another type of platform, most likely a floating platform with a bottom-mounted production facility. Most new leases are located on tracts in 1,600 feet or more of water, where technical requirements are greater and development costs higher.

A major problem for oil and gas producers has been the moratoriums placed on drilling activity on some leases covered by areawide lease sales. In 1984, moratoriums on drilling activity placed over 53 million leased acres off limits to development. In most cases the delays associated with these moratoriums are without justification.

One way to increase production in developed offshore Gulf of Mexico tracts is through enhanced recovery. This could increase production if incentives are offered to producers. This could include tax incentives and higher prices. The future supply of oil and gas through domestic production should remain relatively flat assuming no change in the supply of imports. Discoveries of oil in the lower 48 states will be used up quickly. Undiscovered oil in Alaska and undiscovered and enhanced recovery production in the lower 48 states will be primary sources of oil for the next few years. The oil supply yet-to-be-discovered from the lower 48 states will account for approximately 46 percent of domestic production to the year 2000 with about 60 percent coming from offshore areas. The undiscovered production from Alaska will make up the balance. Natural gas supplies are a bit more dramatic with 31 percent of future production to come from undiscovered natural gas in the lower 48 states. Approximately 35 percent of this natural gas will come from offshore areas. If these supplies do not exist or remain undiscovered through this period, we will be forced to look more carefully at alternative fuels.

"OUTLOOK FOR THE MERCHANT MARINE AND INSHORE MARINE INDUSTRY"

Panelists:

ROBERT E. BRADBURY, Marathon Marine Engineering Co.
BERDON LAWRENCE, Hollywood Marine, Inc.
NEAL S. PLATZER, Platzer Shipyard, Inc.
JAMES G. TOMPKINS III, Lykes Bros. Steamship Co., Inc.

I'm quite pleased to report an apparent high level of business activity in many of the shipyards along the Gulf Coast. A large number of orders are directly related to our country's military buildup, and several commercial vessel orders are probably intended for services requiring U.S. built vessels. A small number of orders are petroleum-related, for platforms and anchor handling/supply vessels. Defense spending in the marine industry is climbing. This trend was reflected in a Maritime Reporter article quoting MARAD's estimate that 67 percent of available Gulf Coast workers were involved in new Navy construction and 67 percent of those available for ship repair were involved in Navy repair work. Fourteen Navy ship repair contracts were listed for Atlantic and Gulf coast yards in 1984. Many of these will go to smaller yards to satisfy small business placement requirements.

Thanks to the Department of Defense, some Gulf Coast yards are doing quite well, but many smaller yards which service the offshore industry have little or no backlog. So, a disturbing picture appears when U.S. shipbuilding is considered in total.

Large ships have gone elsewhere. A few years ago supertankers were nearly all built in the Far East and very large structures for the offshore business are often constructed in Korea or Japan. The reason is simple: cost. We compare productivity, but the real difference is labor costs in western countries versus much, much lower rates in Korea and other rapidly industrializing nations. A general observation might be that the only ships and offshore structures that will be built in the United States are those that require unique technology; can be built so that transportation costs offset the lower wage rate advantage foreign suppliers have; or are required by law to be manufactured in the United States.

Foreign competition is vividly illustrated in a recent advertisement in the Maritime Reporter for Verolme Shipbuilders in Brazil. Peter A.H. Landsberg, the firm's president, is quoted as saying "shipbuilding is no longer an appropriate industry for highly industrialized nations which are entering the post-industrial stage of economic development. Shipbuilding industries of the United States and Europe are in an irreversible decline, and even the large Japanese yards show signs of losing their competitive edge. Developing nations such as Brazil, Korea and China inevitably will be the dominant forces in world shipbuilding." The same advertisement extolls their 20-day repair of a U.S. Navy vessel. The vessel was an oceanographic research vessel, far from home, so this presumably was a special case in which transportation costs were high enough to override policy.

Brazil, China, Japan and Korea are among several nations who build much of their own offshore equipment. Several nations that are low-cost producers exclude foreign imports of competitive products. As jobs have been lost in western countries to overseas producers, the call for protectionism has naturally gotten stronger. A recent letter from the California Coastal Commission to West Coast offshore oil operators urged a "buy California policy." The letter may have been prompted by a Texaco decision to buy an offshore structure from Korea for offshore California.

A number of economic changes have become apparent in the last 30 years: the world-leading U.S. steel industry has shrunk dramatically; the world's most productive shipbuilding industries have shrunk substantially here and in Europe; the U.S. railroad system has almost dropped passenger service while jet air travel has become the norm; the nuclear power industry in the United States briefly blossomed but appears to be dying; our nation has become heavily dependent on foreign petroleum; about one in five of our cars is foreign made; U.S. firms are no longer the dominant force in offshore construction and the same is true in shipbuilding and offshore drilling; the world's finest telephone system has been split up by judicial decree, with unexpected suddenness; and the computer age is rushing forward with incredible speed.

Recounting these changes may be depressing, but we live in a

dynamic world where nothing stays the same. But rapid change offers opportunities as old rules and restrictions become meaningless. We are forced to think the unthinkable. For example, is Mr. Landsberg of Verolme entirely correct when he says "automation can only be taken so far in shipbuilding"? For our sake and the sake of our fellow employees I hope he is incorrect, because innovation seems to be the only way we can compete with the economic facts of life. We must seek new materials, new fabrication techniques and, above all, the best possible management to prosper. In this complicated world we must also realize the almost impossible tasks our political leaders face, balancing local prosperity with national security, and our desire to export with our desire to control imports. No choices seem to be simple or without penalty. In this political year we should all do our utmost to elect those we feel will be best able to make these difficult choices.

Consensus has it that the inland barge and towing industry will be functioning under a very flat demand curve for the next few years. Currently 25 to 35 percent of our barge and boat fleet are idle, and many of those boats and barges will never be repaired and returned to service. Generally, older less efficient equipment, even when tied up and properly mothballed, continues to deteriorate.

The inland barge business is divided into two distinct segments; coal and grain carried in open and covered hopper barges, and petroleum and petrochemicals carried in tank barges. Coal and grain are moved primarily on the Ohio and Mississippi River system. With the severe shortage of crude oil and natural gas a few years ago, forecasts were that the United States would become the "OPEC of coal." To meet this expected demand for domestic and exported coal several loading and unloading facilities and additional barges and towboats were constructed. When the gas and worldwide, crude oil shortage became an unexpected glut, coal was forced to take a back seat. Hopper barges built in the late 1970's are still with us today and will be in the foreseeable future. Coupled with the collapse of the coal barging market, was the grain embargo in response to Russia's activities in Afghanistan. This caused a severe drop in the use of covered hopper barges. However, since President Reagan has lifted the embargo, this segment seems to be improving. The grain barging business seems to be headed upwards and is certainly much brighter than forecasts for coal.

The tank barge business remains weak because of a decreased demand for refined products due to conservation and the recession. Pipelines, which are a cheaper and more efficient way to move refined products, are not being fully used today. Plus we will be operating on a decreasing demand curve for gasoline as more and

more fuel-efficient cars replace older, less efficient models. This flat or decreasing demand for gasoline should continue until the 1990's. Refineries continue to be plagued with red ink and more will probably have to close as the shake-out continues. Each refinery that closes generally eliminates barging business for feedstocks and products. Petrochemicals have also suffered during the recession. With the recent recovery in the housing and auto industries, the volume of chemical barging has been increasing. However, the standard, double-skin, chemical tank barge was severely overbuilt from 1975 to 1981, causing a serious oversupply of this type of equipment today.

Two very serious issues face the inland tug and barge industry, both generated and kindled by the railroads. The first issue is the renewed effort by railroads to own barge lines, often called the common ownership issue. The second issue is the continuing effort by railroads to persuade Congress to raise existing user taxes paid by barge operators. Railroad ownership of water carriers is prohibited under the Panama Canal Act of 1912 unless the rail carrier can demonstrate that such common ownership will serve the public interest and will not impair competition on the water. The water carrier industry strongly opposes the acquisition of American Commercial Barge Line (ACBL) by CSX Corporation because ACBL's service routes are in direct competition with CSX and it would reduce competition in the Ohio Valley and open the doors to dismantling competition throughout the United States. Interstate Commerce Commission (ICC) approval would establish a dangerous precedent in U.S. transportation policy which would significantly alter the ability of independent barge lines to compete with rail-affiliated barge companies. Competition assures lower rates, improved service, maximum efficiency and adequacy of supply of equipment. The cost of transporting commodities, resulting from an absence of competition from independent barge companies, would soar. Railroads reduce their freight rates in areas where they compete with barge transportation. Without competition among transport modes, it is certain that railroads, already a natural monopoly due to ownership and control of who can use their tracks, will increase their rates, particularly in today's climate of little or no ICC oversight. Where deregulation of the railroads occurs, it is imperative that vigorous efforts to promote competition be pursued if the public is to be served. In rail/water transportation, competition can only be preserved by keeping the modes separate.

If CSX is successful in acquiring ACBL, other railroads will acquire barge lines until virtually all of the four to five major railroads own a barge line. Railroads will divert traffic to their own barge lines and independent barge lines will have no opportunity to move this traffic. Some markets are highly sensitive to even slight changes in transportation costs. Since rail ownership of barge lines would ultimately result in higher transportation costs, such markets will be adversely affected.

In 1978 Congress passed a law establishing user taxes on inland waterways. The taxes started at 4 cents per gallon, are

presently 8 cents per gallon and slated to go to 10 cents per gallon in October 1985. The Administration says it supports an end to federal involvement in freight transportation, and has called for full cost recovery of federal investment in navigable waterways. Generally the barge industry does not quarrel with the concept of user taxes.

The barge industry stands ready to pay its fair share of required services furnished by the federal government provided (1) all other modes of transportation receiving such required services do likewise; and (2) before we pay the expenditures that are currently being attributed to the inland navigation operation by the Corps of Engineers a comprehensive and accurate cost allocation study of the system must be conducted.

The first point relating to "modal equity" by the government must be adhered to or there will be shifts of freight from barges to rails or vice versa. However, the Administration ignores the need to recover aid to railroads, yet seeks to place additional layers of taxation on waterways. Examples of railroad aid include an annual federal subsidy of over \$350 million to railroad retirement. Federal programs contribute millions each year to eliminate rail-highway grade crossings, low interest loans, etc. The railroads own 10 percent of the land area of the continental United States. These lands and revenues now are being transferred to parent companies out of reach of the ICC. Over \$4.5 billion in loans have been made in recent years as "bail outs," little of which is being repaid on time and, most likely, will never be paid.

Before we increase existing user taxes, an accurate cost allocation study must be conducted. The Administration assumes that commercial navigation is the only beneficiary that should pay a user fee on money spent by the Corps of Engineers on rivers and canals of the inland waterway system. The waterways serve many purposes in addition to inland navigation such as: flood control, power generation, municipal and industrial water supply, military preparedness, irrigation, fish and wildlife enhancement, export expansion, recreation and regional economic development. A recent Corps pilot study recommends that cost allocation should not be 100 percent but 25 to 30 percent to produce benefits to other users. We feel their pilot study falls short. Recent studies we have conducted show our percentage of Corps expenditures are about 30 percent when the benefits to other purposes are considered along with inefficiencies in costs to the U.S. Army for military preparedness. To put this in perspective, the Corps plans to spend about \$320 million per year for operation and maintenance of existing waterways. The Corps feels 70 percent of this figure or \$224 million is allocable to inland navigation. Industry data suggest it is closer to 30 percent or \$96 million. The Office of Management and Budget estimates \$67 million in tax revenues from user fees at the 10 cents per gallon level. If the industry is able to get fleet utilization back to 90 percent as the economy recovers, the tax revenue could increase to about \$93 million, close to the \$96 million the industry feels is fair.

These numbers support the industry's view that we are paying our fair share.

Our industry supports H.R. Bill 3678 (The Roe Bill). It recognizes the national interest in our water transportation system. It permits vital projects to begin with a significant user contribution, allowing questions of modal equity and proper cost allocation to be addressed in long-term policy development. The waterway industry cannot support Senate Bill 1739 in its present form because it delegates most control of the authorization, appropriation and taxing processes to the Secretary of the Army; imposes taxes on the shallow-draft coastal industry for deep-draft channels which our industry neither needs nor would gain from; and contemplates creating a user board to study what level of fees should be charged, not whether such charges make any sense.

Watercom telecommunications are being constructed to provide a telecommunications network for approximately 4,000 miles of the Inland Waterways: the Mississippi, Ohio and Illinois rivers, and the Gulf Intracoastal Waterways. This system, along with computer-controlled, fuel-management systems, will enable a company to receive information directly from a boat without going through a VHF marine operator or using a single sideband transmission. A number of companies are now offering fuel management systems which show the gallons per hour, engine RPM's, engine temperatures, speed, and other items. Through proper use of these systems, fuel consumption can be reduced, engine conditions can be monitored, and other boat information can be logged in. This timely flow of technical data will enable management to improve the operating efficiency of their fleet.

If there has been any benefit from the recession, it is in the area of labor. Not only is there an ample supply of qualified, willing people, but the work ethic has really improved. People seem to appreciate their job and value productivity.

Presently there is very little need for new equipment financing. Most companies have excess equipment. As normal conditions return, banks and MarAd will be more careful granting loans. Tax shelters will be harder to put together. This should prevent over-building in our industry.

There is a saying that companies like a shake-out of competition as long as they are among the survivors. Our industry is now stronger and more efficient in many ways. As the economy picks up in the mid and late 80's, new opportunities should present themselves.

The reported closing of the Dravo Marine Equipment Company's facility on Neville Island is an appropriate prelude to a discussion of the outlook for the inshore marine shipyard industry. Their management's opinion seems to be that the near future holds no promise for barge and towboat construction. This assessment should hold true for the rest of 1984 and all of 1985. There are too many recently constructed barges operating at or below cost to warrant the addition of anything to the fleet except perhaps specialty barges. For the next 2 years there should be a further redistribution of good barges of recent construction from companies in trouble, or from loan institutions, to major carriers and barge lines to fill expected replacement needs. A number of old, single-skin barges will be sold at very low prices as scrap, or to small operators who will try to survive, operating cheap, but problem-prone, equipment. There will be a larger scraping of this type of equipment than in the past. Major oil and chemical companies will express their preference, through the market, for double-skin equipment and single-skin owners will incur cleaning costs during this period.

By 1986, this redistribution process will be substantially complete. Not many barges will be more than 5 years old. By this time, operators will be ready to sell their older, double-skin equipment for new, double-skin equipment, rather than sink substantial sums into the old equipment. Chemical carriers will probably be in two classes. The first will be barges of 10-thousand-barrel capacities of current design able to carry a much greater variety of products at one time, and easier to clean. The second class will be larger chemical barges designed to move larger quantities of like cargo at high speeds. For oil barges and hopper barges, the oversupply looks bleaker, and could run through the 80's.

All this should mean good business for repair yards. There have, however, been an abundance of new yards and improvements to existing yards in the last 5 to 7 years. This will result in a sorting out of which yards are to survive in a more static industry, as repair yards scratch for volume by precedent-setting price-cutting on major work. This has been going on for 2 years and will continue as long as excess yards survive, or until offshore work picks up and absorbs some of the excess capacity. Until then, barge and towboat operators are in for more bargains. One other key player in this drama is the effect of deregulation on railroads and the apparent relaxing of the restriction on barge line ownership by railroads. If this takes place and has the projected ill effects on the inland barge industry, this could drastically delay any healing of inland shipyard industries' wounds. Rail-owned barge lines may expand on the barge line-owned repair and construction yards, to the detriment of independent yards.

One bright spot in regulatory trends is the reform of the Longshoremen Harbor Workers Act of 1972, which has passed in varying forms in both the House and Senate. Assuming that a version supported by the American Waterways Shipyard Conference

and its inshore shipyard members is passed into law, workers' compensation rates would be greatly reduced, allowing these yards to offer more competitive barge fabrication and to compete more equally for non-maritime work. This will become more important as yards will need to stay flexible to maintain a stable workload. Following trends in other countries, repair work and fabrication of non-barge/towboat-related work will become an increasingly large percentage of this industry's workload.

Another area of regulatory concern is the Jones Act as it relates to U.S.-built vessels. Deregulation, a world economic view, and little appreciation for the role of inshore yards as a national defense, could lead to allowing foreign-built barges and towboats. This would annihilate the inshore marine equipment construction industry in short order. Our upcoming election may well determine the direction to be taken during the next 3 years on such matters as environmental regulation, OSHA harassment and labor law reform. This would also mean a more militant union stance, especially in repair yards, and more restraints on operations in the areas of environmental exposure of employees and communities. Look for weld-fume controls and much tougher barge cleaning regulations in the next round of environmental fervor.

Construction yards must stay flexible to meet the demands for a variety of specialty equipment, which must be built with either low-paid labor and conventional techniques, or with tools versatile enough to accommodate such a variety. Because of high "tooling up" expenses, only a few yards can follow this direction. But, for those that do, a new and more flexible, mechanized approach to inland shipbuilding will develop. Repair yards will not be left without technological improvements, even though most repair yards have seen little change in work methods over the past 20 years. The current and predicted future down-pressure on repair prices, along with the expected sluggish growth of the inshore fleet, will cry for productivity improvements in successful repair yards, whether in steel work, material handling, painting, gasfreeing, drydock, or paperwork. Records indicate productivity in the repair field began a downward trend in the mid-70's and reached a low point in 1980 through 1981. The market has forced us to get serious about productivity in 1982, and has been improving. Survival, and hopefully even modest success, will depend on harnessing emerging technology and combining it with better personnel management. This will be a great benefit for the barge and towboat industries, as they also are forced to be most competitive with each other and with other transportation modes.

One bright spot in our 3-year outlook is labor, and while shipyards do not share the rosy outlook for the hi-tech industry, those employed in shipyards, especially repair yards, will continue to be better off than most other low-tech employees. Until we phase out this generation of shipyard-experienced people, we should have an ample supply of capable employees, based on low-growth projections.

Like many typical inshore shipyards, when business first

slowed down we had been in a relatively profitable period. Cash flow was somewhat tight, due to the large volume of work being done and to the expansion of growth in the company. As business slowed down, money was freed up from receivables, payrolls (our major expense) were lower, purchases were lower, and we were fat with cash. During the next phase we fixed up things that needed repairing in the yard, and got ready to go after the next upswing in the business cycle. When it became evident that we were in for a long, dry spell, expenses were hacked and wages, salaries and benefits cut. Even with these cost-saving measures, low volume and cutthroat competition added up to a negative cash flow. Now that things appear to be firming up for barge and towboat operators, our workload has picked up. More work means a larger payroll, more working capital required, and, usually, a longer asset turnover. There is still so much capacity that prices for work are only slightly improved, so there are still only slight chances to show a profit. Indeed, more yards may fall now. This will be a period for financial institutions to look at options and, hopefully, help the good yards over the hump. The trend of the future will probably be a return to past practices in regard to loans to shipyards. Until recently, borrowing has not been a problem. But, the era of easy-to-get, borrowed money has gone with the coming of 1980 fiscal conservatives. This may delay productivity-improvement investments in smaller yards as business improves due to the limited resources of those internally operated.

Government contracts for watercraft and other marine-related work can be a valuable supplement during the next several years. Much of this work is small business (for our industry, 1,000 employees) set-aside. While you must fight a paperwork jungle and learn to speak a new language to understand the government, the Commerce Business Daily regularly lists requests for quotes on repairs and construction of drydocks, barges, pontoons, tugs, etc. Several inshore construction yards quietly exist on small business set-aside work.

Those who do survive will serve an industry operating on 25,000 miles of waterways, pushing nearly 30,000 barges with an excess of 4,000 towboats. Specialty barges will be built. Replacement barges must be built, once the current surplus is absorbed. The fleet must be maintained in a serviceable and safe condition. We will not be an industry of big profits, but we will be serving America's most efficient and safest transportation system and, in the long haul, that has to be a good investment.

There were some 1,300 American flag vessels in the mid-1960's. The last official count, as of June 1983, showed 486 U.S. flag vessels, 270 tankers, a few bulk vessels, and 201 liners. Many of these 201 vessels are laid up or charged to the

military. Out of that total, at least one-third have not been used commercially. This demonstrates how business is going for the liner fleet. In 1970 there were 24 American Flag Liner companies. Today there are only 10 companies, three of these are seriously troubled and one has filed a Chapter 11. Demand in foreign commerce shipments amounted to less than 2 million long tons in 1983 compared to 35 million long tons in 1970, or 6.4 percent in 1970 and 3.5 percent of the tonnage shipped in 1983. The shipments have remained static, with no growth.

As far as regulatory problems and trends, international shipping is governed from many areas and by many regulatory bodies, both international and national. Three U.S. regulatory issues involve antitrust provisions for American lines operating in international commerce. Section 15 of the 1916 Shipping Act granted antitrust immunity to American lines under certain specific conditions. Late in the 1950's the Department of Justice began to exercise the right of intervention as a routine policy in Federal Maritime Commission (FMC) procedures and American lines began to spend large sums for legal fees. They learned the problems inherent in a lack of ability to respond commercially to trade agreements. They found it almost impossible to compete against foreign flag consortiums. Congress is working on a bill that would relieve this issue. Late in March 1984, Congress passed a regulatory bill signed into law earlier this month by President Reagan (Shipping Act of 1984). This act will make major changes in U.S. liner trade. It provides for the Federal Maritime Commission (FMC) to supplant the Department of Justice (DOJ) as the initiating authority for antitrust proceedings with the burden of proof on the FMC. The FMC legal department has been American liners' first line of defense for many years against the DOJ, so this is a significant change for the industry. Secondly, agreements must be approved within 45 days.

Another regulatory trend is the deregulation of surface transportation. Under certain circumstances, a vessel can attract cargo to a port which is important to service operators and the railroads.

When building new ships foreign yards are considered because even if subsidized funds were available for U.S. shipyards, those funds cover 50 percent of costs, while it actually costs closer to three times as much to build in this country. So we have purchased other U.S. tonnage available and some foreign tonnage from bankrupt operations to be converted to American flagships. To do so, we have to change these vessels to meet certain American standards governed by the American Bureau of Shipping (ABS) and by the U.S. Coast Guard.

American operators have led the world in basic and innovative design. They developed the container ship, the barge ship, and played a large part in the RORO ship. We have been slow developing propulsion systems, because before 1973 fuel was negligible in the cost of the total voyage venture. But, today it occupies 1/3 to 1/4 of the cost in the total venture. So propul-

sion is one of the most important things we have to look for in new technology.

We crew our vessels with about 40 men. We have signed an agreement to build two vessels in Europe and four vessels in Japan with options to extend each. These vessels will not be built before we have agreements with unions that they will crew these vessels with about half the crew we have now, about 21 men. We anticipate no problem with this because the unions understand that if we are to stay on the high seas and continue to be a maritime nation, we are going to have to do so with competitive crew sizes.

The American liner fleet has gone from 24 companies to 10 companies over the last 14 years. Out of the ten companies left, six are conglomerates. These conglomerates realize that the U.S. Merchant Marine is not a high-margin industry; funds had to be diverted either to high-margin industries or to industries that were originally troubled.

Every third world country has wanted a steel mill, an air force and a merchant marine, not necessarily in that order. Many legislated merchant marines, reducing the free market pie tremendously. The Eastern block and Soviet merchant marines have another 2,300 vessels, outfitted using very new technologies. The Soviets have different objectives. First and foremost is to export their influence. Another objective is to earn hard currency. They say they are operating for a profit, but their fixed figure for fuel is nowhere near the actual fuel cost. Plus, the Soviet merchant marine is part of their total naval thrust.

My view of the liner fleet in the near-term future is that we are going to see a smaller fleet in numbers, but only slightly smaller in terms of gross capacity. There will be fewer liner companies. There will probably be far less break-bulk capacity, but growth in container capacity and deepsea barges on short sea routes. There will be service agreements between companies. Operators will venture from traditional routes and ports and expand. We will have a fleet sufficiently large and diverse to properly support a military operation or carry a fair share of U.S. cargo. I am optimistic that we will emerge from this period with a lean, professional and highly efficient U.S. merchant fleet retaining some of the world's best technology and expertise.

